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10/092,375	03/05/2002	Jin-Gyeong Kim	INTV.010A	8251

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EXAMINER

VO, TUNG T

ART UNIT	PAPER NUMBER
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2613

DATE MAILED: 01/18/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/092,375

Applicant(s)

KIM ET AL.

Examiner

Tung Vo

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 03 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-32 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-11, 13-20, 22-30 and 32 is/are rejected.
- 7) ☒ Claim(s) 12, 21 and 31 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05 March 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>09/02; 10/02</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Information Disclosure Statement

1. The information disclosure statement (IDS) submitted on 09/04/02, 10/15/02, 10/22/02 has been considered.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 4-10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 4-10 recite the limitation "the second difference value" that is insufficient antecedent basis for this limitation in the previous claims.

Claims 4-6 and 8-10 should depend on claim 3 in order to provide antecedent basis. Appropriation correction is required.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1-3, 11, 13, 18-20, and 24-30 are rejected under 35 U.S.C. 102(e) as being anticipated by Kawakatsu et al. (US 6,907,072 B2).

Re claims 1-2, 18, and 24-27, Kawakatsu discloses a method of selectively intracoding macroblocks, the method comprising: receiving a packet loss probability value (col. 7, lines 24-30); receiving a motion vector for a first macroblock in a first frame (col. 7, lines 39-51; Note the motion estimation section (17 of fig. 1) estimates motion vectors for a first macroblock in a first frame and continues for next macroblocks in the first frame and for all macroblocks); based at least in part on the motion vector, determining which portions of macroblocks in a previous frame would be used in predicting the first macroblock (col. 7, line 52-col. 8, line 3); calculating at least a first propagation strength value (col. 7, lines 52-57; Note prediction value) based at least in part on determining which portions of macroblocks in the previous frame would be used in predicting the first macroblock; calculating an estimated inter distortion value for the first macroblock based on at least the packet loss probability value and the first propagation strength value (col. 4, lines 17-34; col. 8, lines 39-45; 203 of fig. 2; fig. 3; Note Yes for enter coding of fig. 2; S306 of fig. 3); calculating an estimated intra distortion value for the first macroblock based on at least the packet loss probability value (col. 4, lines 17-34; col. 8, lines 39-45; 203 of fig. 2; fig. 3; Note No for intra coding of fig. 2; S305 of fig. 3); calculating a quantization distortion value for the first macroblock (col. 4, lines 4-8; col. 4, line 49-col. 5, line 2; col. 7, lines 18-30); receiving a first bit quantity value corresponding to a bit quantity used to intracode the first macroblock (figs. 7 and 9; Note bit quantity (fig. 9), bit rate (fig. 7)); receiving a second

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bit quantity value corresponding to a bit quantity used to intercode the first macroblock (figs. 7 and 9; Note bit quantity (fig. 9), bit rate (fig. 7)); and based at least in part on the estimated inter distortion value, the estimated intra distortion value, the quantization distortion value, the first bit quantity value, and the second bit quantity value, providing for transmission the first macroblock as one of an intra macroblock and an inter macroblock (S305, S306 of fig. 3; S505 and S506 of fig. 5); further comprising determining a first difference value based on a difference between the estimated intra distortion value and the estimated inter distortion value (18 of fig. 8), and a second difference value based on a difference between the first bit quantity value and the second bit quantity value (26 and 27 of fig. 8).

Re claims 11, 19, and 28, Kawakatsu discloses wherein the intra distortion value is further based on an initial error energy (14, 18, 21, and 24 of figs. 1 and 8).

Re claims 13, 20, and 30, Kawakatsu discloses wherein the estimated inter distortion value is recursively calculated to include distortion propagated from a plurality of previous frames (motion estimation 17 of fig. 1; repeating the estimating process for next coming frame).

Re claim 29, Kawakatsu further discloses calculating a quantization distortion value for the first macroblock (14 of fig. 1); and selectively provide for transmission the first macroblock as one of an intra macroblock and an inter macroblock based at least in part on the quantization distortion value (15 of fig. 1).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 14-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawakatsu et al. (US 6,907,072 B2) in view of Ribas-Corbera et al. (US 6,968,008).

Re claims 14 and 17, Kawakatsu does not particularly teach the first transition factor corresponds to a first half-pixel horizontal and vertical propagation strength as claimed.

However, Ribas-Corbera teaches the first transition factor corresponds to a first half-pixel horizontal and vertical propagation strength (figs. 3 and 5; Note $\frac{1}{2}$ pixel or pel).

Therefore, taking the teachings of Kawakatsu and Ribas-Corbera as a whole, it would have been obvious to one of ordinary skill in the art to incorporate the teachings of Ribas-Corbera for determining the best vectors and the best motion accuracies.

8. Claims 22-23 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawakatsu et al. (US 6,907,072 B2) in view of Walker (US 6,222,881).

Re claims 22-23 and 32, Kawakatsu does not particularly teach wherein the first macroblock is provided as one of an intra macroblock and an inter macroblock further based upon a weighting factor; wherein the weighting factor is generated at least in part by calculating a plurality of intra distortions values using corresponding different quantization parameters, and selecting a weighting factor value that results in the lowest distortion value meeting a first bit-rate criterion as claimed.

However, Walker teaches wherein the first macroblock is provided as one of an intra macroblock and an inter macroblock further based upon a weighting factor (410 of figs. 5 and 6;

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506 of fig. 5); wherein the weighting factor is generated at least in part by calculating a plurality of intra distortions values using corresponding different quantization parameters (502 and 504 of fig. 5), and selecting (506 of fig. 5) a weighting factor value that results in the lowest distortion value meeting a first bit-rate criterion (616 and 618 of fig. 6).

Therefore, taking teachings of Kawakatsu and Walker as a whole, it would have been obvious to one of ordinary skill in the art to incorporate the teachings of Walker into the method of Kawakatsu for performing motion estimation of the encoding process. Doing would provide video quality that is improved by using finer quantization to encode those regions to which the human eye is more coding-error sensitive (thereby preserving more detail) than is used for those regions to which the human eye is less coding-error sensitive.

Allowable Subject Matter

9. Claims 4-10 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.
10. Claims 12, 21 and 31 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

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Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.


Kurobe et al. (US 6,333,948) discloses a video coding apparatus, video coding method and storage medium containing video coding program.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tung Vo whose telephone number is 571-272-7340. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mehrdad Dastouri can be reached on 571-272-7418. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Tung Vo
Primary Examiner
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